

**ANNEX  
BETWEEN  
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
AMES RESEARCH CENTER  
AND  
THE BOEING COMPANY  
UNDER SPACE ACT UMBRELLA AGREEMENT NO. 29380/ SAA2-403460  
FOR  
WIND TUNNEL TESTING  
(ANNEX NUMBER THREE)**

**ARTICLE 1. PURPOSE**

This Annex Three on the Reimbursable Space Act Umbrella Agreement SAA2-403460 (the “Umbrella Agreement”) between The Boeing Company (“Boeing” or “Partner”) and NASA Ames Research Center (“NASA” or “NASA ARC”) shall be for the purpose of performing a wind tunnel test of the airplane configurations of Boeing in the 11x11-Foot Transonic Wind Tunnel (“TWT”) and the 9x7-Foot Supersonic Wind Tunnel (“SWT”) at NASA ARC in order to obtain aerodynamic performance data. Each capitalized term used in this Annex Three, but not defined herein, shall have the meaning ascribed to it in the Umbrella Agreement.

The legal authority for this Annex, consistent with the Umbrella Agreement, is the National Aeronautics and Space Act (51 U.S.C. § 20113(e)).

**ARTICLE 2. RESPONSIBILITIES**

A. NASA ARC will use reasonable efforts to:

1. Provide use of its TWT and its SWT and associated facilities in order to perform a wind tunnel test to meet the testing conditions desired by Boeing.
2. Provide use of its existing instrumentation and model support hardware, as necessary. This will include provisions of labor and materials necessary to plan, prepare, and perform testing, and provide data analysis support.
3. Deliver reduced wind tunnel data to Boeing after completion of final test program.

B. Boeing will use reasonable efforts to:

1. Provide wind tunnel test models that meet NASA ARC model safety criteria.
2. Provide model interface hardware to the NASA ARC facility that meets the facility safety criteria unless compatible interface hardware exists in the NASA ARC inventory.
3. Provide instrumentation and/or data systems that are not part of the existing inventory of NASA ARC, if required. Where required, these components/systems shall be compatible with the NASA ARC Standard Data System.
4. Provide a Test Plan that includes a prioritized run matrix to indicate: model and control surface settings; model angle of attack; Mach number; other desired tunnel

- conditions; and acceptable tolerance levels.
5. Provide personnel and additional hardware to perform test coordination; model configuration changes and customer-supplied instrumentation; and data system support.

### ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

<b>Milestone</b>	<b>Schedule</b>
Final Wind Tunnel Requirements Defined (Boeing)	30 days prior to TWT entry
Receipt of Models at NASA ARC (Boeing)	Two weeks prior to TWT entry
Enter 11x11-Foot TWT for Testing (NASA)	On or about August 8, 2022
Enter 9x7-Foot SWT for Testing (NASA)	On or about August 22, 2022
Completion of Wind Tunnel Testing (Both Parties)	On or about 1 weeks after SWT entry
Transmittal of Reduced Wind Tunnel Data (NASA)	Within two weeks after test completion of final test program

### ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$3,842,131 for NASA to carry out its responsibilities under this Annex. Each payment shall be marked with Ames, Annex Three, SAA2-403460-3.

B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort, or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within six months after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement.

## ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of three years.

B. Under paragraph H of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

### 1. Background Data:

The Disclosing Party's Background Data, if any, will be identified in a separate document.

### 2. Third Party Proprietary Data:

The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate document.

### 3. Controlled Government Data:

The Disclosing Party's Controlled Government Data, if any, will be identified in a separate document.

### 4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement:

None.

## ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or one year from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

## ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

## ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

## Management Points of Contact

### NASA Ames Research Center

Matthew J. Holtrust  
Agreement Manager  
Mail Stop: 223-2  
Moffett Field, CA 94035  
Phone: (650) 604-4069  
[matthew.j.holtrust@nasa.gov](mailto:matthew.j.holtrust@nasa.gov)

### The Boeing Company

Carlos Suarez  
Procurement Agent  
2800 Westminister Blvd  
Seal Beach, CA 90740-5606  
M/C: W-S29-E201  
Office: (562) 280-4741  
[carlos.suarez3@boeing.com](mailto:carlos.suarez3@boeing.com)

## Technical Points of Contact

### NASA Ames Research Center

Maureen Delgado  
Wind Tunnel Division Chief  
Mail Stop: 227-5  
Moffett Field, CA 94035  
Office: (650) 604-1620  
[maureen.a.delgado@nasa.gov](mailto:maureen.a.delgado@nasa.gov)

### The Boeing Company

Justin Johnson  
BDS Aerodynamics  
3700 Bay Area Blvd  
Houston, TX 77058  
Office: (832) 224-7282  
[justin.l.johnson@boeing.com](mailto:justin.l.johnson@boeing.com)

## ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

## ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

### **NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AMES RESEARCH CENTER**

BY: \_\_\_\_\_  
Eugene L. Tu  
Center Director

DATE: \_\_\_\_\_

### **THE BOEING COMPANY**

BY: Carlos Suarez  
Carlos Suarez  
Procurement Agent  
BDS Supply Chain – Phantom Works

DATE: 6/7/22